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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,062	04/14/2004	Rajeev Puttaiah	OBC-136	6081

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ENERGY CONVERSION DEVICES, INC.
2956 WATERVIEW DRIVE
ROCHESTER HILLS, MI 48309

EXAMINER

LEWIS, BEN

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 07/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/824,062	PUTTAIAH ET AL.	
	Examiner	Art Unit	
	Ben Lewis	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 –7, 9 and 11-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Kurasawa et al. (U.S. Patent No. 6,602,637 B1).

With respect to claim 1, Kurasawa et al disclose a secondary battery case wherein, for example, the battery case comprises a battery case body housing the power generating elements comprising the positive and negative electrodes, an electrolyte and a separator, and a cover for sealing or blocking the opening of the battery case body, said two parts being welded with each other (Col 8 lines 25-36). Polyphenylene ether-based resin (A) used in the present invention is a polyphenylene ether or a mixture of a polyphenylene ether and a styrene-based resin (Col 3 lines 65-67).

Regarding said mixture further includes a thermally conductive, electrically insulating material distributed throughout the matrix material, Kurasawa et al teach that addition of an organic filler, reinforcing agent or inorganic filler such as glass fiber, talc, mica, kaolin, calcium carbonate, silica "silicon oxide", clay, etc., is especially effective

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for improving rigidity, heat resistance and dimensional stability. Various types of known coloring agents and their dispersing media can also be contained for practical use (Col 7 lines 19-27). Kurasawa et al also teach that in the present invention, the secondary battery case comprises one molded battery case part or two or more molded battery case parts using a specific thermoplastic resin defined above, and in some cases, it comprehends separators (electrode group) and a cover (a cap) in addition to the battery case body (container) housing the electrodes, electrolyte, etc (Col 7 lines 55-67).

With respect to claims 2-5, Kurasawa et al teach that polyphenylene ether-based resin (A) used in the present invention is a polyphenylene ether or a mixture of a polyphenylene ether and a styrene-based resin (Col 3 lines 65-67). Crystalline polypropylene resin (B) used in the present invention is a crystalline resin having propylene as main structural unit (Col 4 lines 55-67).

With respect to claims 6, 7, 9 and 11-14, Kurasawa et al teach that addition of an organic filler, reinforcing agent or inorganic filler such as glass fiber, talc, mica, kaolin, calcium carbonate, silica "silicon oxide", clay, etc., is especially effective for improving rigidity, heat resistance and dimensional stability. Various types of known coloring agents and their dispersing media can also be contained for practical use (Col 7 lines 19-27).

With respect to claims 15-17, Kurasawa et al disclose a secondary battery case wherein, for example, the battery case comprises a battery case body housing the power generating elements comprising the positive and negative electrodes, an electrolyte and a separator, and a cover for sealing or blocking the opening of the battery case body, said two parts being welded with each other (Col 8 lines 25-36). Kurasawa et al teach that addition of an organic filler, reinforcing agent or inorganic filler such as glass fiber, talc, mica, kaolin, calcium carbonate, silica "silicon oxide", clay, etc., is especially effective for improving rigidity, heat resistance and dimensional stability. Various types of known coloring agents and their dispersing media can also be contained for practical use (Col 7 lines 19-27). Kurasawa et al teach that polyphenylene ether-based resin (A) used in the present invention is a polyphenylene ether or a mixture of a polyphenylene ether and a styrene-based resin (Col 3 lines 65-67). Crystalline polypropylene resin (B) used in the present invention is a crystalline resin having propylene as main structural unit (Col 4 lines 55-67).

The instant specification recites: The polymer matrix material may be at least one polymer selected from the group consisting of polycarbonate, polyethylene, polypropylene, acrylics, vinyls, fluorocarbons, polyamides, polyolefin. polyesters, polyphenylene sulfide, polyphenylene ether, polyphenylene oxide, polystyrene, acrylonitrile-butadiene-styrene, liquid crystal polymers and combinations, mixtures, alloys or copolymers thereof. Particularly preferred are a polyphenylene ether/polystyrene blend and a polypropylene/polyphenylene ether blend. The thermally conductive, electrically insulating material may be distributed within the matrix material

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in a continuous (i.e. two or three dimensional meshes or mattes), discontinuous (i.e. particulate or fibrous material) or mixed mode manner. Examples of suitable thermally conductive, electrically insulating material include calcium oxide, titanium oxide, silicon oxide, zinc oxide, silicon nitride, aluminum nitride, and boron nitride and mixtures thereof. Particularly preferred is particulate boron nitride (Paragraphs 0011 and 0012)

. Kurasawa et al do not disclose any data comparing the thermal conductivity of the mixture and matrix material. However, it is the position of the examiner that such properties are inherent, given that Kurasawa et al and the present application utilize the same materials. A reference which is silent about a claimed invention's features is inherently anticipatory if the missing feature is necessarily present in that which is described in the reference. In re Robertson, 49 USPQ2d 1949 (1999).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kurasawa et al. (U.S. Patent No. 6,602,637 B1) as applied to claims 1 –7, 9 and 11-18 above and further in view of Moore et al. (U.S. Patent No. 3,584,758).

With respect to claim 8, Kurasawa et al disclose a secondary battery case in paragraph 2 above. Kurasawa et al do not specifically teach wherein said thermally conductive, electrically insulating material is a two or three dimensional mesh or matte. However, Moore et al discloses a battery tray wherein in accordance with this invention, the characteristics of the battery tray 30 described above are obtained by separately molding units thereof and assembling the units together with layers of resin filled with woven fiberglass roving and fiberglass mat. Referring to FIG. 2, the basic unit of the tray 30 comprises an inner cell casing 42 of a hollow, rectangular tubular construction closed at its lower end. The hollow inside of the inner cell casing 42 is the same as an individual compartment 32 of the completed tray 30. The inner cell casing 42 is constructed over a collapsible male mold member (not shown) of any conventional construction and is comprised of one or more layers of woven fiberglass roving (not shown) soaked with resin. If desired, a layer of thin fiberglass mat (not shown) may be laid between two layers of woven roving (Col 3 lines 53-75). Therefore it would have been obvious to one of ordinary skill in the art to incorporate the fiberglass mat of Moore et al into the battery case of Kurasawa et al because Moore et al teach that to enhance the impact resistance of the completed tray 30, a layer of resin filled with fiberglass mat, comprising four sheets of mat 62, 64, 66 and 68, is sandwiched between the outside of the wrapped inner cell assembly and the inside of the outer case 58 (Col 4 lines 7-24).

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kurasawa et al. (U.S. Patent No. 6,602,637 B1) as applied to claims 1-7, 9 and 11-18 above and further in view of Lodyga et al. (U.S. Patent No. 6,713,088 B2).

With respect to claim 8, Kurasawa et al disclose a secondary battery case in paragraph 2 above. Kurasawa et al do not specifically teach wherein said thermally conductive, electrically insulating material is particulate boron nitride. However, Lodyga et al discloses a low viscosity filler composition of boron nitride particles of spherical geometry and process wherein boron nitride (BN) is a chemically inert non-oxide ceramic material which has a multiplicity of uses based upon its electrical insulating property, corrosion resistance, high thermal conductivity and lubricity. A preferred use is as a filler material additive to a polymeric compound for use in semiconductor manufacture as an encapsulating material or to form a low viscosity thermosetting adhesive or in formulating a cosmetic material (Col 1 lines 20-30). Therefore it would have been obvious to one of ordinary skill in the art to incorporate the boron nitride of Lodyga et al into the battery case of Kurasawa et al because Lodyga et al teach that a preferred use is as a filler material additive to a polymeric compound (Col 1 lines 20-30).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ben Lewis whose telephone number is 571-272-6481. The examiner can normally be reached on 8:30am - 5:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ben Lewis


PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXA

Patent Examiner
Art Unit 1745